

Northern Transition:

Winter to Spring

by JAMES L. HOLMES, Agronomist, USGA Green Section

In the regions of cool season grasses, golf course superintendents try to anticipate trouble as winter ends and spring arrives. "Winter kill" or "spring kill" is quite common in the North and most of the serious damage takes place on putting surfaces.

There are specifically two types of damage that regularly occur: (1) extended periods of ice or snow cover will create an anerobic condition in the soil, and (2) desiccation or an insufficient amount of soil moisture to support plant life. Sometimes these conditions can be detected early and serious turf loss reduced.

Desiccation

Several precautions can be taken when desiccation or a shortage of soil moisture is anticipated. Where this condition is prevalent, golf course superintendents either place brush on greens, surround greens with snow fence, use large water tanks and apply moisture by hand whenever necessary, or use a combination of all three of these practices.

Occasionally, winter and spring weather is sufficiently dry so that water must be applied with a spray tank on three or four occasions throughout the season. At least 500 gallons, and never more than 2,000 gallons, are used on a 5,000-square foot area.

In severe cases, superintendents commence operating water systems even though the threat of freeze may exist. Under such conditions the system is drained back, at least in part, preceding an anticipated cold spell.

Ice or Snow Cover

The other type of damage normally expected on putting surfaces results from an extended

period of ice cover. Superintendents in the Chicago area have reached the conclusion that if a uniform layer of ice completely covers greens for periods longer than 25 days, every effort to remove or break the ice must be made. If a layer of snow is beneath the ice or the ice is rotten, i.e. full of holes or of a perforated nature, little damage is expected. Obviously, most severe damage occurs in low, water-holding areas.

Numerous operations are in effect for ice removal and include top-dressing with a dark material, breaking holes in ice with crow bars or other devices, or completely removing ice with front end loaders or other suitable equipment. Even though putting surfaces may be scarred by the heavy equipment, many superintendents believe it is easier to repair this type of damage than to re-establish a putting surface which has been severely "winter killed."

Also of interest is the association of severe "winter kill" damage following ice cover and the use of arsenicals. It appears that if arsenates are being used, or have been applied in the past, damage is more severe, especially in lower, moisture-holding areas. Therefore, for the superintendent who has used lead or calcium arsenate in the past, particular attention should be given to the 25-day limit for ice removal.

A considerable amount of research is being done in an effort to determine exactly what happens when bent and *Poa annua* turf become ice-covered for an extended period. To date no data have been uncovered which give very clear answers. The opinion seems to be that the primary factor is reduction or exclusion of



When winter turns to spring, grass doesn't necessarily turn green. Winter Kill can be serious.

available oxygen in the rhizosphere compounded with the probability that toxic respiratory products are not dissipated because the entire plant is encased in a sheet of ice. Research data further indicate that *Poa annua* is the first type of grass to exhibit damage; another good reason to eliminate this weed.

The Recovery Road

If "winter kill" has been sufficiently severe regardless of protective precautions taken, and portions of putting surfaces are "killed out," a number of rejuvenation programs are followed. The damaged location is either completely removed and replaced with sod or the area is vigorously aerotilled and overseeded.

Following overseeding, the damaged area can be "greenhoused" with clear polyethylene plastic. It has been determined that bentgrass will germinate under plastic and commence

growth even though the outside air temperature is not above freezing.

The use of plastic is time-consuming and laborious. The operation must be watched closely. Excessive heat can build up under plastic on a bright, sunny day even though air temperatures are quite low. Frequent removal may be necessary.

It is difficult to keep plastic in place on a windy day. Large staples made from coat hangers, rubber tires, or lath nailed to the ground can be used. Even with these problems, however, plastic cover is an excellent tool in returfing a green when celerity is necessary.

If plastic is not used and the damaged area is overseeded, it is of utmost importance that germinating seedlings be kept constantly moist until they mature to the first mowing stage. In the past four or five years the author has personally observed that overseeding with Seaside



*It is not the snow cover that brings on winter kill damage. Rather, a prolonged cover (25 days or more) of solid ice on putting greens causes havoc to turfgrasses, especially **Poa annua**.*

bentgrass has given better results than overseeding with any other type. If the damaged area is not extensive, sodding is frequently a better answer than overseeding.

Watch Out for Disease

So we weather the winter, weather is warming and preparations are being made to establish top playing conditions. One of the most severe and often unrecognized problems to be faced is that of spring disease damage, primarily fusarium patch. This fungus can be active or damaging in extensive areas and can be completely unnoticed. The golf course superintendent would be wise to apply at least one application of a fungicide known to be effective against this disease.

Further, if a water soluble fertilizer is applied in early spring before grass has initiated a good, vigorous growth, fusarium patch disease is

likely to be encouraged more than turf. Therefore, do not be in too big a hurry to apply fertilizer in early spring. Rather, delay it until a vigorous, healthy turf growth is initiated. Even if this first application of fertilizer is delayed until this time, it is still wise to keep a close check for activity of fusarium patch.

Rolling?

Most golf course superintendents have come to the conclusion that it is not necessary to roll greens heavily in the spring. Rather, putting green mowers into regular use will suffice as rollers, with the exception of extreme cases of heaving where it is evident that heavier rolling is necessary.

Mowing

Turf should be mowed as soon as growth has been initiated and there is enough new growth

to cut. If a vertical mowing program is needed, it should not be undertaken until the weather has definitely warmed and vigorous growth is assured.

For aerification, most superintendents have come to the conclusion that superior results are obtained if this operation is delayed until late

spring or early summer. This makes sense because in the more northerly part of the country soils are loosened as a result of heaving earlier in the spring and further aerification is not warranted. However, by late spring or early summer, soils have begun to compact and aerification helps to relieve it.

It's Nice to Be Missed

Recently a number of inquiries have been received concerning the fate of the 1967 Green Section Regional Education Conferences. For the past six years, the one-day educational meetings have been held throughout the East, Mid-continent and Western regions, usually in late March.

Last January it was decided that a new format would be tried in 1967. In lieu of regional conferences, a complete summary of the Green Section's New York Educational Conference (January 27) would appear in the March,

1967 issue of the **Record**. The topic "Modernizing the Golf Course—Revision and Renovation" was fully covered in that issue.

This type of national presentation, i.e. the printed word versus regional meetings, is on a trial basis this year. Your reaction to the new format is appreciated.

The March issue of the **Record** was well received. At the same time, apparently the regional conferences have been missed by many and that, too, is gratifying to the Green Section staff.

Work on Meyer Zoysia Recognized

The USGA Green Section has been awarded the Registration Certificate for development of Meyer Zoysia. The Green Section work was undertaken in cooperation with the Crops Research Division of the U.S. Department of Agriculture. Meyer Zoysia has now been accepted by the Committee on Varietal Standardization and Registration of the American Society of Agronomy and USDA Agricultural Research Service.

Joseph C. Dey, Jr., Executive Director of the USGA, received the following letter from the Department of Agriculture Registration Officer, C. S. Garrison:

Dear Mr. Dey:

"Meyer Zoysia has been registered with

the Committee on Varietal Standardization of the Crop Science Society of America and assigned registration number 12. A descriptive article was published in the January-February 1966 issue of **Crop Science**.

In accordance with the policy of the Committee, a certificate has been prepared for the developing agencies of this variety. We are pleased to enclose the registration certificate for retention by the U.S. Golf Association."

Sincerely yours,
G. S. Garrison